

Peer Review

Review of: "Does Palaeolithic Resource Management Leading to Domestication Explain Human "Modernity"?"

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This is a fascinating review that raises several important points that have long been present in archaeology and other disciplines when dealing with the evolution of modern humans and domesticates, though often avoided, postponed, or opposed by many. It is a hard paper to criticise and, as far as my expertise can reach, I could not detect grave faults, errors, or unjustified claims. The author remains clear, profound, and yet cautious when articulating and evaluating the main hypothesis behind this review: that domestication, in the broadest sense, is a definitive process behind the evolutionary development of modern humans. I was unable to identify any misrepresentation of facts or references, and I enjoyed the transdisciplinary nature of the text, which spanned topics from archaeology to genetics and ethology across a large geographic area.

After reading the most penalising reviews this paper has received so far, I recognised key shortcomings that should be addressed, some of which go beyond my own expertise. However, I would recommend caution to the author in heeding a few points of extreme criticism, particularly when criticism sprouts from overconfidence. I remain convinced of the text's overall quality and argumentative strength, and believe it is worth publishing after revision.

One key point is to improve the terminological precision and clarity (i.e., the definition and contextualisation of certain terms, such as modernity and domestication). A more explicit definition of management, domestication, and self-domestication, and their relationship, should be included, as evidenced by the reaction of a few reviewers. A common ambiguity is that domestication is read as both a state (the consolidation of a syndrome) and a process (species becoming intertwined). Beyond recollecting definitions given in references, which will be a partial and superficial ordeal, an option to

improve this clarity would be to "decompose" those concepts into, for example, domesticating practices and symptoms or traits, instead of syndrome. With a decomposed or deconstructed version of these concepts, e.g., posed in a list or table, the author may state more clearly what elements are presumably shared or related according to his analysis.

Overall, and in agreement with the comments of a few other reviewers, I would strongly recommend that the emphasis on human intention behind management and artificial selection is reduced or, at least, nuanced, since it is not strictly required for domestication to start, even if reproductive control and selective breeding are key aspects of later development. Niche construction theory should be worth a mention here, even if it is not aligned with the author's argument. Truly, the wording of a few passages could be toned down in confidence or better contextualised to be more acceptable academically.

Additionally, as one of the previous reviewers already pointed out, more should be said about the case of wolves/dogs, which seem central yet received little attention in the text.

Here are a few additional suggestions:

1. Despite the risk of straying too far from archaeological debates, I suggest that coevolution, symbiosis, and mutualism be brought to the discussion, particularly their significant role in evolution, which brings species together to form new biological entities (in the sense of symbiogenesis). A concise mention of these concepts will further justify the focus on domestication as a more common process than realised and, at the same time, help redefine it as a human expression of a much wider evolutionary mechanism. Such mention is, of course, not necessary within the paper's stated scope, but it would deepen the argument regarding evolutionary theory.
2. The case examples are clear and enlightening, but I miss a section that addresses at least one counterexample: a species that appears to have been driven to extinction after contact with humans. The interest of this in such a review would be to evaluate whether and to what extent a so-called pre-adaptation to domestication, at both ends of the relationship, is a requirement.
3. The diagram in Figure 1 adds very little to the paper and reads like a reasonable but failed attempt to list all potential factors and nonlinear relationships, simply stating that modern human culture is an ongoing cultural complex in which changes on one side resonate throughout the system. Although the idea has merit, I recommend further refining it or replacing it with one that depicts more concrete evolutionary mechanisms that could apply to the domestication cases reviewed. The

latter may also help illustrate the differences and similarities between these cases and others. For example, proposing timelines for the different cases and placing factual or hypothetical domestication states and shifts.

Declarations

Potential competing interests: No potential competing interests to declare.